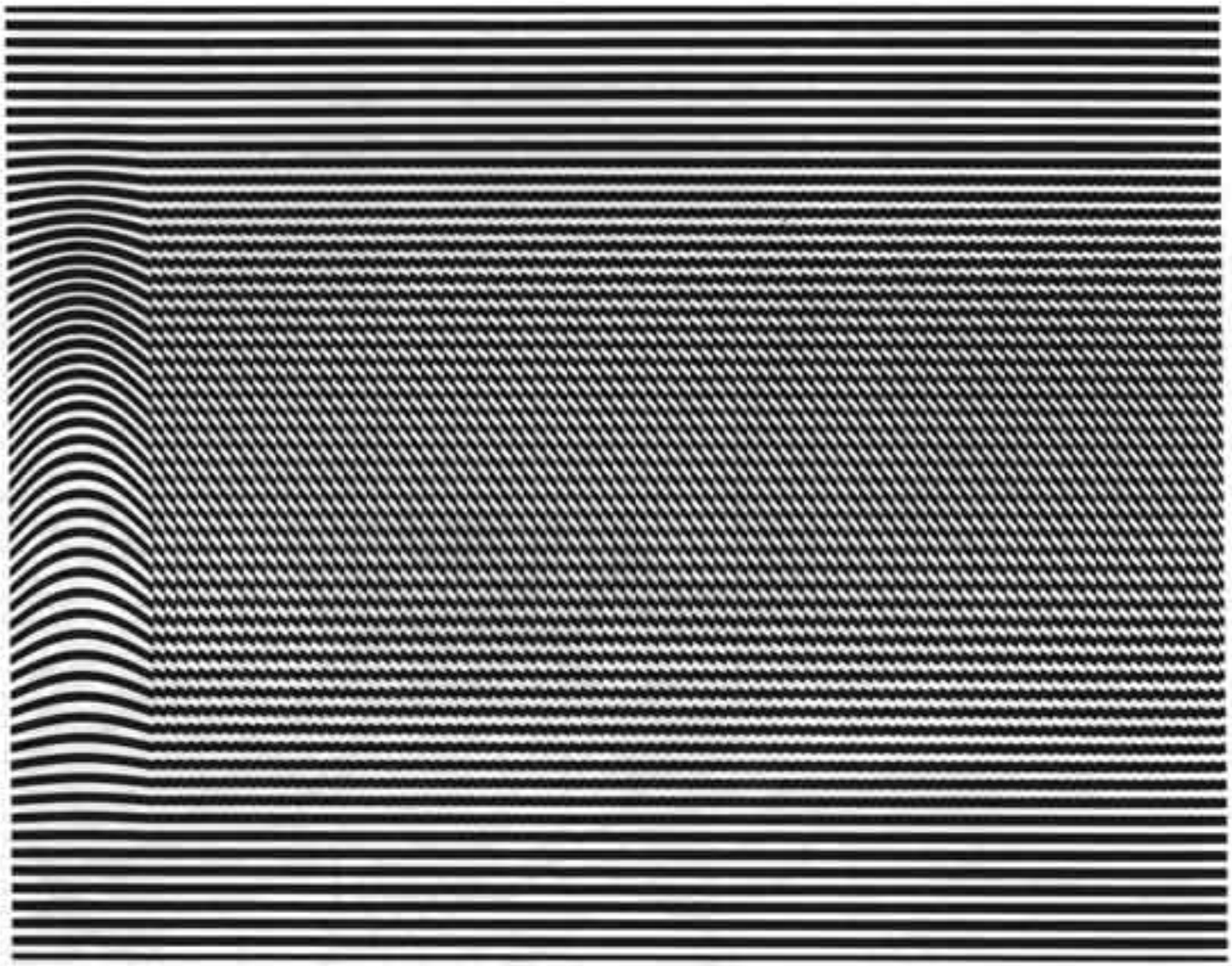
# Ylem

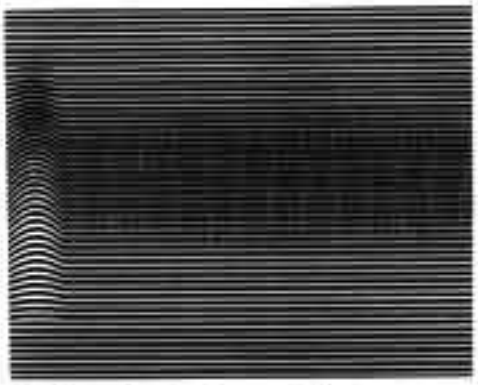
**Ylem** *(Eye-lum)*: 1. The primordial stuff out of which the universe emerged. 2. An emerging group of artists who believe that science and art enhance each other and human understanding.





VOL. 4 NO. 1 MATHEMATICS IN ART MAY 1984

## About the Cover



### "Waver" by Scott Kim

This op-art image was commissioned as an illustration for John Pierce's recent book "The Science of Musical Sound". In the published version the undulating waves extend all the way across the image. In this version however a software bug caused the image to get stuck, much like a broken record, leaving a shower of parallelograms instead of flowing lines. The effect is not what I originally had in mind, but just as optically active. This piece was produced in the programming language, JaM and printed on a high resolution laser printer (880 dots/inch) at Xerox Palo Alto Research Center.

This newsletter is published bi-monthly and distributed to members of Ylem. Membership application is on page 7.

*Ylem Newsletter*
**Trudy Myrrh Reagan,** *director*
**Mark Burstein,** *Editor*
**David Healy,** *art director*

*Ylem Officers*
**Trudy Myrrh Reagan,** *president*
**Loie Johnson,** *secretary*
**Robin Samelson,** *membership*
**Deanne Delbridge,** *programs*
**Tom Pressburger,** *treasurer*
**Shoshanah Dubiner,** *field trips*
**Louis Brill,** *"Yellow Pages"*

Contributions are most welcome. Drawings, graphic pieces, photos; with explanation; submissions to "Opportunities", "Feedback"; or "Calendar"; short book reviews or articles are sought.

## Computer Graphics

***Christa Schubert, graphic designer, illustrator, and owner of Quikdata Telecomputing (Los Alamitos) works on a Nova type (128C Ampex) computer with inhouse software. She writes:***

"My tool for creating CG is a high resolution flatbed plotter driven by multi-parametric software based on mathematical formulas acting upon primitives like sinewave, circle, star, line.

From the beginning my concept of CG I wanted to do was basically geometric: Generating long series of strokes, automatically, under the influence of translation, rotation, and scaling functions. My programs usually start with half a dozen parameters which in the process of testing, exploration, and change have, as in the case of my two largest, increased to twenty or more. Each parameter has a large range of effectiveness which in combination (concatenation) with the others results in vast possibilities for choice.

In a hit-and-miss process, especially in the beginning, I learned a fast lesson about geometric and arithmetic progressions (and which I preferred), also about the importance of proportionality of certain parameters in relation to the 360 degrees of the circle and then about 'flips' that occur when a parameter crosses the Zero point on the scale.

My explorations in the more predictable areas serve very practical aims such as creating faster, better, cheaper, and even new ways to generate forms and patterns that have direct applications in graphic design as in trade marks, surface design (zipatones, shaded rules), ornamentation and even animation - all with an eye on making available what would be prohibitive or impossible to do by hand.

My love, though, is with the charting of the new visual territory emerging from a computer driven by a range of mathematical formulas. This allows me to generate images outside of my mind's ability to conceive, and then include them in the library of visual forms at my disposal and manipulate and control them. In much of my non-applied work I try to deal with and integrate these findings into my personal form language.

# *Synopsis of "Perception"*

*Ylem Forum, April 7, 1984, Stanford*

*by Trudy Myrrh Reagan*

### Perception from Tibet

As Kathy Wersen, a PhD candidate at Union college, spread out an array of Tibetan temple bells on a mat, we were invited to sit close to them, eyes closed, and savor the experience of their unusual timbres. Reactions were quite subjective, and this writer confesses to having heard them in a kinaesthetic, multisensory way. The deep ones had a smoky autumnal quality, and the occasional "ping" of the smaller ones was as pure and fresh as jasmine. For her thesis Ms. Wersen is investigating the means by which sound can produce healing and meditative states.

### Illusions, Ambiguities, and Anomalies

A different perceptual experience, the double-take, was offered by Roger Shepard, who is both a psychologist and artist, with a long standing interest in illusions. A Professor of Psychology at Stanford, and author of *Mental Images and Their Transformations* (MIT/ Bradford 1982) he is a talented artist whose drawings are a reflection of his research measuring individuals responses to ambiguous stimuli to infer how the mind processes that information. One of these, "Robot Brain" from the "Visual Anomalies" series is reproduced on this page. His drawings are finely-wrought paradoxes that have Escher-Like qualities. He also showed other works based on the "tenderly weird" images of dream states and patterns generated spontaneously in the eye/brain.

### Chasing Rainbows

Alex Nickoloff, who works at the Lowie Museum at UCB, and his wife Martha are prism specialists, whose work has two aspects. The first (as seen in the last (3/84) Ylem newsletter) is an outdoor sculpture that uses spectral light as an element. We saw a videotape of this. The second focus of their work is "painting" with light and music on videotape. The Nickoloffs made many kinds of setups using both refracting and reflecting materials to produce an astonishing variety of gorgeous visual effects.

### Serious Play with Lightbulbs

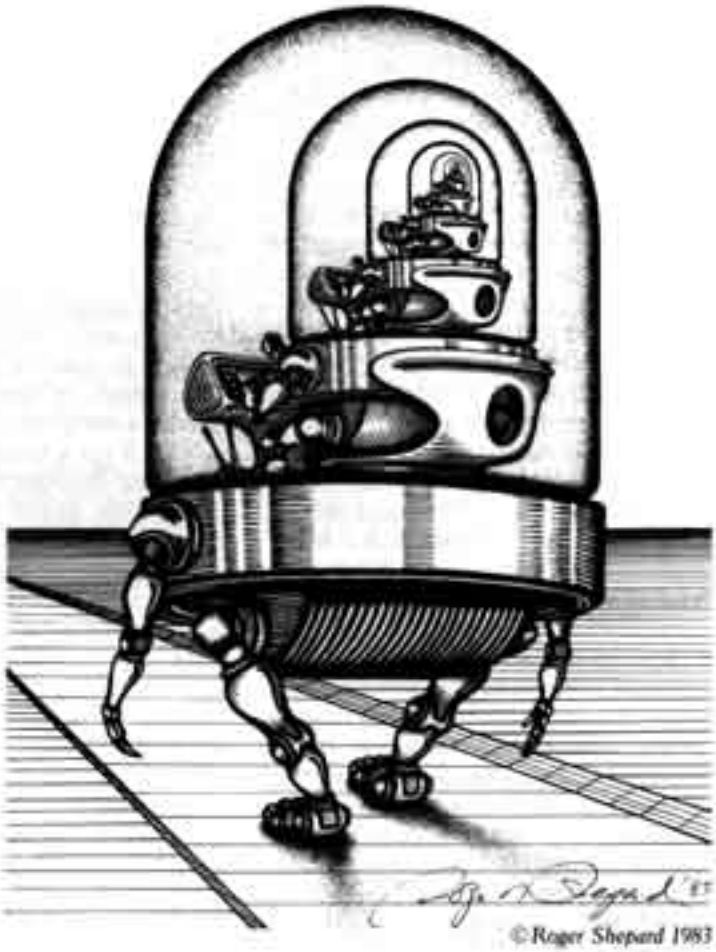
On the surface, a Milton Komisar sculpture is a messy cobweb of hardware: light-conducting plastic rods connected by balls containing lightbulbs; miles of electrical wire; and a computer to control the on-off sequence of the lights. But when the overhead lights go off, the mess disappears and the internal lights begin. The flash sequences are created by an "insanely intuitive" script (program) which give the people standing, sitting, or lying under it an opportunity to "get out of gravity and into a different sort of space". It was unfortunate that we could only get a sense of these works via the slides he brought, but his purpose was clear: to reflect the unbounded magnitude of time and space, their enormous orderly processes, and the joy of living therein.

### Watching Perception Happen

The film "Man, the Incredible Machine" showed images inside the eyeball, sound vibrating the eardrum, and other functions of the human body hitherto invisible. Although of a radiant and compelling beauty, it was difficult to integrate the images since they went by so rapidly.

### Recommended Reading:

***Perception***, Irvin Rock (Scientific American Library, JUST OUT, $23 hardcover). It deals with visual perception, exploring the problems of perceiving constancy of objects under continuously changing conditions. This is not a book about grey matter, but the image processing that goes on in it.



© Roger Shepard 1983

## L.A.S.A.R. Meeting

In a mutual collaboration, YLEM and L.A.S.E.R. (Laser Arts Society for Education & Research) presented a seminar on computer graphics to the public. The seminar was held at the Haight Ashbury Cultural Center on Page Street in San Francisco with about 40 people in attendance. Members from both L.A.S.E.R. and YLEM demonstrated various aspects of computer graphics and discussed the newest developments in the field.

Harry Critchfield of the California College of Arts and Crafts brought a film entitled "Turning a Sphere Inside Out", and Pacific Data Images supplied a video tape of an amazing combination of video and computer effects. Eleanor Kent gave a presentation on computer paint programs and Will Mangan discussed the state-of-the-art QUANTEL computer graphic paint system. L.A.S.E.R's own Gary Zellerbach gave a demonstration of programmable computer graphics on the Atari 800 home computer.

The seminar demonstrated the possibilities of programmable graphics, paint programs, and the merging of video and computer effects and gave a taste of what may be expected in these fields over the next few years. Most important is price accessibility - costs on some of these "paint programs" are low enough for home use and some are upgradeable as new features such as "air brushing" and "animation" are introduced.

Another important aspect of the presentation was the opportunity for everyone to exchange information. Judging from the turn out and the collaborative effort between the two organizations, it is obvious that both YLEM and L.A.S.E.R. have many resources to offer each other.

It is hoped that both organizations can continue mutual exchanges of ideas and talent and expand our involvement in the artistic applications of technology. Perhaps someday we'll even see the combination of computer graphics and holography for massive storage and three dimensional display of computer information.

If you are interested in L.A.S.E.R. activities, and membership, contact them at P.O. Box 42083, S.F. CA 94101.

## *Computer Power and Human Reason,*
### *From Judgment to Calculation.*

*Joseph Weizenbaum, (W.H. Freeman, 1976, paper $11.95)*

This is a book about computers as an aid to human hubris, the kind of pride that goes before a fall. It is informative, showing exactly how computers give us the illusion that they understand the responses they emit. It is indignant, showing that even artificial intelligence programmers, who should know better, are taken in by them. Because the appearance of intelligence is so compelling when the machine gives lifelike answers, correctly assessing the "understanding" of the machine proves as difficult as gauging distances in an optical illusion. Under this spell, the "artificial intelligencia", as he calls the group, is planning great things for us.

The book sounds an alarm: common sense tells us that systems patched together from smaller units having rationales that differ in their thrust and credibility will often give nonsense answers. Therefore, neither their reliability nor their wisdom should be relied on in extreme situations. Nevertheless, the military and others are giving them life-and-death matters to decide. Finally, he grieves that our conception of human intelligence is being chopped and pruned to fit the metaphor of the computer. To say that we are nothing but stimulus-processing devices, ignoring all wisdom, creative mystery, and delight in ambiguity, may make it so. Each of us is as affected by this as we have been by Freud, whether we use a computer or not.

This is not a Luddite philosopher denouncing developments of which he knows little. Joseph Weizenbaum wrote the ELIZA program in 1964-66, which had an ability to improve its responses to questions as its knowledge base grew. This is the programming concept behind "expert programs" now in use by doctors, chemists and others. To demonstrate it, he wrote a program called DOCTOR that imitates a Rogerian therapist, whose technique was to reflect back paraphrases of the patients' complaints. The gullibility of all who interacted with the program, their emotional involvement with the machine-as-confidant surprised and perplexed him. "[Q]uite fundamental questions had infected me more chronically than I had first perceived. I shall probably never be rid of them."

One of the shocks to his sensibilities was that psychiatrists hailed the DOCTOR Program as a solution to understaffed mental hospitals. Weizenbaum's response was that there are decisions that affect human life that, even if the computer *can* make them, it *ought not* be allowed to do so. Healing the mentally disturbed is one. Deciding whether to respond to an international threat to peace with diplomacy or missles is another.

This is a short book, but hard to summarize: wonderful observations appear on every page. As we lurch toward "launch-on-warning", it is timely as well. Other members' comments: David Oster: "One of the Classics. Everyone interested in the subject should read it". Frank Dietrich: "There are bookstores full of computer books, but only a few on this level. This is really surprising."

*- Trudy Myrrh Reagan*

### *Dr. Dobbs Journal*

*Dr. Dobbs Journal*, a monthly magazine, is a pioneer publication in the microcomputer industry and has a reputation for creative and forward-edge thinking. It publishes material on computer languages, operating systems and tools for programmers.

*Dr. Dobbs Journal* is interested in reviewing quality art in any printable medium for its cover designs. Although the material in the magazine is highly technical, cover art does not have to be confined to literal interpretations. Please send slides or samples of your work to:

Shelley Rae Doeden
M&T Publishing
2464 Embarcadero Way
Palo Alto, Ca 94303
or call 415/ 424-0600

# Ylem Calendar

***May 11, 1 - 11 pm***
**at California Humanities Asso. Annual Conference,** Vallombrosa Center, 250 Oak Grove, Menlo Park, ***Ruth Asawa*** will have a ***Do-it-Yourself Art Workshop*** at 1 pm, making polyhedra from slices of milk cartons. At 8 pm, architect ***Nadar Khalili*** will describe his remarkable houses made with earth and fire. Other events. Friday fee $20 does not include supper. (Conference continues all weekend. Topic on Saturday: The Third World; Sunday: Food, Peace, & the Future.) For info: 415/ 282-5321 (mention: "conference").

***May 12, 7:30 pm***
**Winning Films from Palo Alto Film Festival,** including "World Peace is a Local Issue", ***Best of Festival,*** by member Dorothy Fadiman. New Varsity Theatre, 456 University, Palo Alto.

***through May 13. T-F 1-5, S-S 12-4***
**"Reflections on Our Times", Nancy Worthington.** Black humor social commentary in the form of electro-mechanical kinetic sculpture. San Jose Museum of Art, 110 S. Market St., San Jose.

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***May 20, 2 pm***
**Ylem Video Project Planning Meeting,** home of Robin Samelson, 3769 Nathan Way, Palo Alto, 94303. Please phone before coming! 415/ 856-0682. If there is not enough interest, meeting will be cancelled! (See details, Ylem Notes, pg. 7.)

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***through May 27, T-Sun. 11-5***
**"Light shell", Milton Komisar.** On-site light sculpture. Porter College, U.C. Santa Cruz.

***May 28 - June 1***
**Graphics Interface '84, Ottawa, Canada.** Tutorials on a fairly technical level. $230. Info and registration, Graphics Interface '84, P.O. Box 7009, Postal Sta. J, Ottawa, Ontario K2A 3Z6, Canada; 613/ 231-4446.

***through May 30***
**Maestros de la Luz (Lightmasters),** a show of U.S. artists using computer and other electronic media curated by Eleanor Kent, Galeria Magali, Ometusco, 43, Col. Condesa, Mexico D.F., 06100, Mexico.

***May 31, 7:45 pm***
**"The Artist and the City", S.F. Art Commissioner Jo Hanson.** How the City acquires, uses, and maintains art; how to get your work considered for its collection. Bring "finger food". At her studio/home, 201 Buchanan at Waller, beside U.C. Extension. Sponsored by Artists Equity.

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***June 2, 1:30 pm (NOTE CHANGE IN TIME)***
**Ylem Business Meeting.** Board members, please plan to attend. Other interested folks welcome! At home of cosmic painter Geoff Chandler. 478 Frederick (in the Haight), San Francisco.

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***June 2, 3-6 pm (NOTE CHANGE IN TIME)***
**"How Artists Use Mathematics", Ylem Forum.** Haight-Ashbury Park Branch Library (downstairs). 1833 Page, San Francisco. (See details on page 8)

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***through June 3, daily 11-6***
**"The New California Quilt",** California Craft Museum, The Mustard Bldg., Ghirardelli Sqaure, S.F.. Ingenious tessalating patchwork with optical effects.

***June 4-6***
**Applied Interactive Computer Graphics, with Dr. James Foley and Ellen Knapp.** A course intended for programmers, analysts, and technical managers - the people who design the systems artists use. Key Bridge Marriott Hotel, 1401 Lee Highway, Arlington, VA. To register, call 301/ 596-0111, Wash. D.C.. Fee: $850.

***June 12-14***
**Applied Interactive Computer Graphics,** (see description above) Hyatt Ricky's Hotel, 4219 El Camino Real, Palo Alto, CA. To register, call 213/ 824-9545, Los Angeles. $850.

***June 13-15***
**National Education Computing Conference.** A major meeting place for computer educators to be held in Dayton, Ohio. Info, Lawence A. Jahn, Computer Science Department, University of Dayton, Dayton OH 45469.

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***June 17, 2 pm*** **Ylem "How-to-Photosilkscreen" Party,** free demo by Ron Etheridge of San Jose Office Supply on his Thermofax machine. With it, he makes low-cost 8 x 10 silkscreen masters from your high-contrast drawings or negatives without chemicals, darkroom, or hassle. Bring your design, t-shirt or art paper, and "fingerfood" to the studio/home of Trudy Myrrh Reagan, 967 Moreno, Palo Alto. Info (after May 31): 415/ 856-9593

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***June 19-28***
**Microcomputer Music with the alphaSyntauri Digital Synthesizer,** with Ron Pellegrino. Extended Education, Sonoma State University, Rohnert Park, CA 94928.

***June 21, 7 pm***
**"Artist's Representative, The New Dealers", lecture by Hansen Fuller Gallery founder Wanda Hansen.** Learn about this alternative to hustling work to uninterested galleries. Bring "finger food". San Francisco Museum of Modern Art, fourth floor. Sponsored by Artists Equity.

## *Ylem Field Trip*

### Rock Lover's and Beachcombers' Delight

Take a personal tour of Half Moon Bay, Moss Beach and Montara Beach with geologist Clyde Spencer.

Date: ***either July 14 or July 28***. Meet at 8:00 am at the Stanford Shopping Center. Potluck at 6:00 pm. (place to be decided)

Call Shoshanah Dubiner 415/ 221-3595 for more information and to choose the most convenient date.

# Opportunities

***Deadline May 15***

**Heller Gallery seeks proposals** by individuals or groups for shows. Submit 10-15 slides, resume(s) to Heller Gallery, ASUC Student Union, U.C. Berkeley, CA 94720. Info, Sam Samore, 415/ 642-3065.

***Slide deadline June 1***

**California State Fair,** Aug. 17- Sept. 3. Open to California artists. Awards $16,850. Fee $8/entry, limit 2. Info and forms, CA State Fair, "California Works", P.O. Box 15649, Sacramento, CA 95852; 916/ 924-2015.

***Slide deadline June 1***

**San Francisco Art Fesitival,** Aug. 1-5. Open to artists from Bay Area counties. Fee $5. This festival is big and ***complex***. Fine arts, light arts (including computer works), crafts, and group shows are all administered somewhat differently. Tell the office which you are interested in. Submit separate application for each division you enter. Computer art show administered by Ylem member Donna Cohen. Info: Frank Pietronegro, 45 Hyde St., 3rd floor, San Francisco, CA 94102; 415/ 558-4888. Also ask about opportunities to volunteer.

***Deadline June 15***

**1st National Valley Video Festival,** June 25-29. Fee, $5 plus return postage. Info: SASE to Leonard's Artspace/Video Festival, 307 H St., Modesto, CA 95351: 209/ 578-2723.

***Deadline June 15***

**Computer Art Competition,** Award $250 to each work selected. Judged by both artists and computer graphics experts. Info: ***Popular Computing Magazine,*** *Computer Art Comp.*, 70 Main St., Hancock, NH 03458; 603/924-9281.

**Santa Ana College seeks California Artists, all media.** Send 10-15 slides to slide registry from which future exhibits will be curated. Label with name, title, date, dimensions, medium. Send with resume to: Mayde Herberg, Gallery Director, Santa Ana College, 17th at Bristol, Santa Ana, CA 92706

**Insurance for the free-lance artist:** Group rates on major medical for you, and casualty for your art works available from both ***American Crafts Council,*** 401 Park Ave. S., NYC 10016; and ***Artists Equity,*** P.O. Box 28068, Central Sta., Wash. D.C., 20005. Anyone may join ACC, but Artists Equity is for professional artists only.

# *Show Us Your Art – And Come See It Shown In October*

*Janaia Donaldson and Shelly Rae Doedin write:*

"We wanted to *see* the art created by other Ylem members, especially work with potential use in the commercial graphics projects we do (Janaia does independent graphic design, including new age music albums; Shelley art directs *Dr. Dobb's Journal* for computer folks).

"So we're putting together a slide/-sound show of members' art, to be premiered at the October 13 Ylem forum meeting. The show will also be available to other art directors, groups, & individuals, some of whom might also be interested in the images for reproduction, or to connect with artists to commission work.

"We *want your images.* Send at most ***three*** non-returnable slides of your work to us by ***July 1st.*** (Yes, the final irrevocable deadline is September 1st, but this way you'll get it done. Don't procrastinate. We want to see your work now!). We'll add a space music soundtrack and other finishing touches.

"Send 3 slides plus your name, address, phone, and brief paragraph about your work (your focus, theme, interests, fascinations, technique, etc.). (If you have printed pieces you care to have us keep in our own files, send them along too). Mail to: Janaia Donaldson, Concept Image Design, 445 E. Charleston, Room 8, Palo Alto, CA 94306."

***Editor's Note to Authors:*** In the September newsletter featuring this forum meeting, we will list and perhaps describe books written by members. Please observe the deadlines below:

Mark your calendar:

July 1 - Slides and Book info due
Sept. 1 - Newsletter appears
Oct. 13 - Ylem Arts Slide Show

# *Resource List*
## Math Made Visible

**Orderly Tangles: Cloverleafs, Gordian Knots, and Regular Polylinks,** Alan Holden (Columbia Univ. Press, 1983 $19.95 hardcover). Knots, weaving, and polyhedra. Handsome book.

***The Principles of Two-dimensional Design,*** Wucius Wong (Van Norstrand Reinhold, 1972). With step-by-step illustrations he leads you from the obvious to the intriguing.

***The Language of Pattern,*** Keith Albarn et al. (Harper & Row, 1974). Beautiful arabesques, and their relation to number patterns.

***Polyhedra Primer,*** Peter Pearce (BACK IN PRINT! Dale Seymour Publications, 1983) A Classic.

***Patterns in Space,*** Col. R.S. Beard (Creative Publications, 1973). A smorgasborg of fascinating patterns and polyhedra, with the data needed to construct them.

***A Creative and Conceptual Analysis of Textiles,*** Joan Michaels-Paque (Paque, 1979. 4455 N. Fredrick Ave., Shorewood, WI 53211 $15). Textile construction is a hands-on way to learn some interesting geometry. The author explores some provokative geometric parallels between woven, braided, and stitched strands.

**Charles Baddage and His Calculating Engines,** C. Baddage et al., edited with introduction by Philip and Emily Morrison (Dover, 1961 Out of print). – An essay by Baddage's helper, Ada Lovelace, discusses the influence of the Jacquard loom on his designs.

"COMPUTER ART: Sculptures of Polyhedra Networks Based on an Analogy to Crystal Structures Involving Hypothetical Carbon Atoms", Robert Dewar, ***Leonardo Magazine,*** Vol. 15, No. 2, 1982. Don't let the title scare you. This explores a connection between geometry, computing, and patterns in atoms that others have not seen. A display based on member Bob Dewar's work will be on display at the June forum.

***Small Computers in the Arts News,*** P.O. Box 1954, Philadelphia, PA 19105, $10/yr. Their March '84 issue had a terrific list of computer graphics articles and books.

"A Sampling of Computer Graphics [for Video] in the Bay Area", Donna Cohen, ***Video Networks,*** March 1984. Bay Area Video Coalition, 1111 17th St., S.F. CA 94107, $25/yr.

# *Ylem Notes*

Ylem members – you can expect the new mailing list in your July newsletter. This year it will be cross-indexed by location and art medium. Attention: all of you who received envelopes in this newsletter, ***to be included on next year's mailing list, we must recieve your renewal by JUNE 1st.*** To keep us in the black, dues are now $15, or $10 if you live more than 100 miles away. Please enclose the subscription blank.

Other members who joined between October and March renew in January. If you did not receive an envelope, send us any corrections for the mailing list only.

We're often asked, "Is Ylem a computer art group - or what!?" The fantastic variety of media represented in the group will be made abundantly clear by the new mailing list format.

Dues are already tax-deductible for most of you as a business expense. Now that the board has apporved, with minor changes, the by-laws (copies of which will be available soon by writing Ylem), we have all the forms ready to become a corporation and non-profit. One thing we did *not* need to do was a name search! We should allow about four months for processing, after which anything you give to Ylem will be tax-exempt.

Illness *almost* prevented Trudy Myrrh Reagan from conducting the April 7th business meeting and forum. At the business meeting Bill Henderson consented to be vice-president, which will take care of future emergencies.

The new format of the newsletter, especially the beauty of it, was discussed with the typographer and designer, David Healy, at the meeting. The money from increased dues earmarked for "newsletter improvement" will begin to pay for typesetting.

Two other art dealers belong to Ylem, and would like to receive information about members' work: Harleen & Allen, 510 3rd St., San Francisco 94107; Joslin Industry, 2 Henry Adams St. No. 349, San Francisco, 94103.

Frank Dietrich reports that he is now living at 3477 South Court, Palo Alto, 94306, and he is anxious to locate his computer graphics colleagues in the area. Phone 415/ 494-9109.

Mike Marshall wonders if anyone else is interested in forming a professional-quality computer graphics co-op. He's at 3351 Bryant, Palo Alto, 94306; 415/ 857-0795.

Carrie Adell is interested in talking with people who like to design interactive visual play on computers. She has an idea that a "game" could be created designed to lower stress in the player, using magnificent mandala-like images that grow to music. She suggests that it could be a product sold to raise money for Ylem.

Robin Samelson has been offered an opportunity by Channel 48 to develop ten 10-minute segments about computer art to air Thursday evenings at 6:30 This little package comes complete with free use of a production studio and crew, but Channel 48 needs to know by **June 1st** if it can be done. She perceives this to be an opportunity for Ylem, the first step to documenting what our members do. People with experience in video, a video camera to film on location, and, of course, artists who use computers in their art in any way, that is: computer graphics; computer-assisted art (prints, etc.); computer controlled art (moving sculpture, etc.) are needed. A meeting to discuss this exciting prospect is planned for the arternoon of May 20 at 2 pm. Call Robin to say that youTl attend. (If there's not enough interest the meeting will be cancelled. Or, ask for information 415/ 856-0682.

Dear Trudy.

I enjoyed talking to you yesterday and am excited to learn more about YLEM. Enclosed please find a check for my membership.

As I explained by phone, I believe that there is a real need for distribution channels for "high tech" collectables. This is one function which Reconaissance will perform. Additionally, I believe that there is a real possibility for such a company. Once it is selling established lines, to begin underwriting high tech artists in the development of their work by, for example, making experimental or production facilities available.

As you can tell, I am very excited about the aesthetic, technological and commercial possibilites. I welcome your thoughts and suggestions on additional contacts I should make.

*Lewis T. Kontnik*
*Reconnaissance*
*1612 A Que St. N.W.*
*Washington, D.C. 20009*

*Send to Ylem, 967 Moreno, Palo Alto, CA 94303*

NAME _____

ADDRESS _____

CITY _____ ZIP _____

PHONE _____

I would like:

- ☐ to receive a sample issue
- ☐ a year's membership. $20 is enclosed.
- ☐ newsletter only, since I live more than 100 miles from both San Francisco and Palo Alto. $15 is enclosed.

## Next Meeting

# "How Artists Use Mathematics"

June 2, 3-6 pm,
Haight-Ashbury Park Branch Library
(downstairs) 1833 Page St., San Francisco

**Shiela O'Hara: *"Calculating Weaving Drafts"***
**Dan Cooper: *Landscapes from Sinewaves"***
**Frank Dietrich: *"Vedic Numbers and Computer Patterns"***
**Martin Kahn: *"Plotting and Inventing 3-D Forms with Calculus"***
***and more: displays and hands-on fun.***
**Free -bring friends, bring art to share.**

Bus riders, catch #7, #71, #72, the Haight buses, from Market St.. Get off at HOLOS Gallery, 1792 Haight, walk one block North to Page. Drivers: If you can't find parking, head for cheap parking at Kezar Stadium. Forum is free, open to public.

**HEALY DESIGN**

*THIS ISSUE OF THE YLEM NEWSLETTER HAS BEEN PRODUCED BY HEALY DESIGN*
*415 • 864-7033*

## *What Constitutes the Universe?*

*(or, No Man is an Ylem)*

**by Mark Burstein**

A few linguistic musings. ***Ylem*** (primordial matter) is derived from the Greek *xylé* which not only signified "matter" but more literally "wood". Although wood is a fine building block for the universe, a more current one is sour cream. Allow me to explain. The term "quark", postulated to be the most elementary constituent of matter, was said by its inventor, Murray Gell-Mann, to be derived from a line in Joyce's *Finnegans Wake* ("Three quarks for Muster Mark") usually interpreted as consonant with "quarts" (as in beer). Although "quark" first came to the public attention in this way, it is not the complete story. "Quark" as an imitative sound (of frogs, ducks) is in the Oxford English dictionary as early an 1860 and Webster's in 1934. All these are wide of the mark, however, as it is a simple German word meaning, "stuff, dirt, or rubbish, in particular, curds or sour cream". Perhaps the moon is made of green cheese, after all.

Ylem

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